# THE MAIN FEATURES OF HISTOMORPHOLOGICAL CHANGES 24 HOURS AFTER CLOZAPINE AND CLOZAPINE-ETHANOL POISONING

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**Introduction.** Clozapine (atypical antipsychotic drug) and its metabolites are capable of accumulating in body tissues including the lungs [1, 2]. Several studies have shown pathological changes of the pulmonary tissue in case of clozapine poisonings [3, 4]. Morphological changes in the lungs were studied presumably at late stages of the pathological process. At the same time, the effects of ethanol in combination with clozapine on this process remain unclear.

**The aim of the study.** The aim of the study is to reveal morphological changes in the lungs in acute clozapine and combined clozapine — ethanol poisoning 24 hours after the intoxication.

**Materials and methods.** We performed a comparative study of histological sections of the lungs of outbreed male rats weighing 290–350 g. Group 1 included 5 rats treated with clozapine oral dose (150 mg/kg) and decapitated 24 hours after the intoxication, group 2 included 5 rats treated with clozapine (150 ml/kg) and ethanol (5 ml/kg) and decapitated 24 hours after drug administration. Control group included intact rats (5). Fisher's ratio test was used to estimate the reliability of the difference between the groups. The presence of the sign was considered to be reliable if the sign didn't appear in one group and appeared in 4 or 5 cases in the other group. Morphometric analysis was also performed (ten fields of vision for each tissue section). Estimated parameters were as follows: the share of the area of alveoli, the share of the area of intraalveolar septi, the share of the area of vessels, the share of the area of WBC, the share of the area of WBC in intraalveolar septi, the share of the area of distelectasis, the share of the area of edema.

**Results.** No pathological changes were observed in the control group. The signs detected in the study group 1 (clozapine, 24 hours) were as follows: an increase in WBC number, distelectasis, thickening of intraalveolarsepti due to edema, infiltration of intraalveolar septi by WBC.

The signs detected in group 2 (clozapine, ethanol, 24 hours) were as follows: hemorrhage into alveolar septi and alveoli, infiltration of intraalveolar septi by leucocytes, perivascular hemorrhage, thickening of the intraalveolar septi due to edema, an increase in WBC number, atelectasis, distelectasis.

The area of alveoli was significantly lower in both study groups compared with the control group. The area of intraalveolar septi, the area of edema, of the area of WBC and of the area of WBC in intraalveolar septi were significantly higher in both study groups in comparison with controls. The area of distelectasis, the area of WBC, the area of WBC in intraalveolar septi were significantly lower in group 2 (clozapine and ethanol, 24 hours) compared with group 1 (clozapine, 24 hours) .

**Conclusion.** All these pathological changes can be used to diagnose clozapine and clozapine-ethanol poisonings and the cause of death.

## References

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